SAFETY DATA SHEET

This safety data sheet complies with the requirements of:
JIS Z 7253:2019

Revision date 10-Jul-2024
Revision Number 16

1. Identification

Product Name DOP

Safety data sheet number CGE-A-001

Registration Number(s) CGE-A-001

Details of the supplier of the safety data sheet

Manufacturer
CG ESTER CORPORATION
Shin Otemachi Bldg.,2-1,Otemachi 2-Chome,Chiyoda-ku,Tokyo 100-8105 Japan
TEL:+81-3-5203-2860 Fax:+81-5203-2864

Emergency telephone number +81-3-5203-2860

Recommended use of the chemical and restrictions on use

Recommended Use Plasticizer and solvent for various resins

Restrictions on use Please do not use for other than recommended use.

2. Hazard(s) identification

GHS Classification

Acute toxicity - Oral	Not classified
Acute toxicity - Dermal	Not classified
Acute toxicity - Inhalation (Gases)	Classification not applicable
Acute toxicity - Inhalation (Vapors)	Classification not possible
Acute toxicity - Inhalation (Dusts/Mists)	Not classified
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation	Category 2B
Respiratory sensitization	Classification not possible
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Classification not possible
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Classification not possible
Acute aquatic toxicity	Not classified
Chronic aquatic toxicity	Not classified
Ozone	Classification not possible

GHS label elements
Does not apply

Signal word Warning
Hazard statements
Causes eye irritation

Precautionary statements

Prevention
• Wash face, hands and any exposed skin thoroughly after handling

Response
• Not applicable
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• If eye irritation persists: Get medical advice/attention
Storage
• Not applicable
Disposal
• Not applicable

Other hazards

No information available.

3. Composition/information on Ingredients

Pure substance/mixture Substance

Common name Dioctyl phthalate

Chemical formula C6H4(COOCH2CH(C2H5)C4H9)2

Chemical name	CAS No.	Weight-%	ENCS Inventory	ENCS Number	ISHL Inventory	ISHL No.
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	117-81-7	>=99	Existing	(3)-1307	Existing	(3)-1307

4. First-aid measures

General advice Show this safety data sheet to the doctor in attendance.

In case of inhalation Move to a place with fresh air and rest in a comfortable posture. If you feel unwell, contact your doctor.

In case of skin contact Wash off immediately with soap and plenty of water. Consult a physician if necessary.

In case of eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Get medical attention if irritation develops and persists.

In case of ingestion Rinse mouth. Do NOT induce vomiting. Call a physician.

Most important symptoms/effects, acute and delayed No information available.

Note to physicians Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media	Dry chemical or CO2. Foam. Dry sand.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	Incomplete combustion may generate toxic carbon monoxide gas.
Hazardous combustion products	Carbon monoxide. Carbon dioxide (CO2).
Special Extinguishing Media	
Large Fire	If it cannot be moved, sprinkle water on the container and its surroundings to cool it.
-	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Do not touch or walk in the leak.
For emergency responders	Use personal protection recommended in Section 8.
Environmental precautions	See Section 12 for additional Ecological Information.
Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	For a small spill, collect the spill by adsorbing it with absorbent (sawdust,soil, sand, or waste cloth) and wipe the residue well with waste cloth anddust cloths. Dike to collect large liquid spills. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.
Other information	Refer to protective measures listed in Sections 7 and 8.

7. Handling and Storage

Handling

Local and General Ventilation	Perform local exhaust and general ventilation in item 8.
Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice.
Prevents Handling of Incompatible Substances or Mixtures	See Section 10, Reactivity, Conditions to Avoid, Dangerous Goods to Touch.
Hygiene Measures	Avoid contact with skin, eyes or clothing.

Storage

Storage Conditions	Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines

Chemical name	Japan Society of Occupational Health	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester 117-81-7	TWA: 5 mg/m^3	-	TWA: 0.1 mg/m^3 Sk*

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Chemical name	Japan Society of Occupational Health	ACGIH
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester 117-81-7	-	-

Engineering controls Showers
Eyewash stations
Ventilation systems.

Environmental exposure controls No information available.

Personal protective equipment

Respiratory protection Use gas masks, air masks, air respirators, etc. for organic gas as needed.

Hand protection Impervious gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Antistatic long-sleeve protective clothes and shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance
Physical state Liquid
Color colorless
Odor Almost odorless

Property	Values	Remarks • Method
Melting point / freezing point	-50 °C / -58.0 °F	
Initial boiling point and boiling range	386 °C / 726.8 °F	
Flammability	When heated to high temperatures, combustible gas is produced by decomposition.	
Upper/lower flammability or explosive limits		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive	0.1 vol%	

limits		
Flash point	218 °C / 424.4 °F	
Evaporation rate	No data available	
Autoignition temperature	400 °C / 752.0 °F	
Decomposition temperature	No data available	
pH	No data available	
Viscosity		
Kinematic viscosity	77 mPa s	@ 20 °C
Dynamic viscosity	No data available	
Water solubility	Insoluble in water 0.003 mg/L	@ 20 °C
Solubility(ies)	Soluble in Ether Alcohol	
Partition Coefficient (n-octanol/water)	7.60	
Vapor pressure	160 Pa	@ 200 °C
Density and/or relative density		
Relative density	0.986	@ 20 °C
Liquid Density	No data available	
Bulk density	No data available	
Relative vapor density	13.46	
Particle characteristics		
Particle Size		
Particle Size Distribution		

Other information

10. STABILITY AND REACTIVITY

Reactivity Stable.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Keep away from open flames, hot surfaces and sources of ignition.

Incompatible materials Strong oxidizing agents. Strong bases. Strong acids.

Hazardous decomposition products Carbon monoxide. Carbon dioxide (CO2).

Explosion data

Sensitivity to static discharge No information available.

Sensitivity to mechanical impact No information available.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Numerical measures of toxicity - Product Information

No information available

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	= 30 g/kg (Rat)	= 25 g/kg (Rabbit)	> 10620 mg/m^3 (Rat) 4 h

Abbreviations and acronyms

Rat: Rat
Rabbit: Rabbit

Symptoms May cause redness and tearing of the eyes.

Product Information

Ingestion Specific test data for the substance or mixture is not available.

Inhalation Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available. Causes eye irritation. May cause redness, itching, and pain.

Skin corrosion/irritation Classification not applicable.

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Species	Rabbit
Effective dose	0.5 g
Results	Mild skin irritant

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes eye irritation.

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	According to ACGIH (7th, 2001), ATSDR (2002),EHC 131 (1992)11)and EU-ARA No.42 (2003), it is conceivable that DOP is not eye irritating or slightly eye irritating, and based on the study result that DOP is slightly eye irritating, it was classified into category 2B

Respiratory or skin sensitization

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	Skin sensitization:According to the description in EU-RAR No. 42 (2003), DOP was not shown as skin sensitizing by test results of the “maximizing method and Buehler method using guinea pigs.” It was conceivable that DOP is not skin sensitizing, and it was classified as “not classified”

Germ cell mutagenicity

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	DOP was negative from results of mutagenicity tests with microbes (not injurious to DNA).According to CERI & NITE’s Hazards Evaluation No. 7 (2004) and ATSDR (2002), DOP is positive in mutagenicity tests (dominant lethal tests) through generations. However, since administration routes in the tests showing positive were not appropriate and other dominant lethal tests and micronucleus tests proved negative, it was classified as “not classified”

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Japan	IARC	Japan - ISHL Designated Carcinogens
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester 117-81-7	2	Group 2B	

Legend

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	In 1980, it was reported that DOP administration at very high concentration to rats induced tumors in the liver. The subsequent research revealed that the hepatic tumors occur through a mechanism unique to rodents. Based on this, in 2000, IARC (International Agency for Research on Cancer) modified the DOP carcinogenic classification from the conventional “2B” (possibly carcinogenic to humans) to “3” (not classifiable as to carcinogenicity for humans) because of no carcinogenicity in humans. At the meeting in February 2011,however, IARC decided to return DOP to “2B.” It is not because new evidence in humans was found, but because further investigations and research are considered necessary for the mechanism and epidemiology of carcinogenicity in rodents. The Japan Plasticizer Industry Association(JPIA) examined in detail the articles used as the evidence for the modification, and considered as in the past that species differences exist in DOP carcinogenicity, and the GHS classification was established as “not classified”

Reproductive toxicity

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	The substance was administered to a pair of male and female mice by blending into food, and the pair mated multiple times . As a result administration of 144 mg/kg/day or more was observed to produce infertility and decrease the number of surviving babies of the same pair No influence is observed on testis in testing the substance by using adult and juvenile marmosets. From the data of rats/marmosets in the studies performed so far, it was shown that a large species difference exists in the reproductive toxicity(including testicular toxicity) of DOP between rodents and primates, and applying the data obtained in rodents to humans is not considered. In the past literatures of the assessment in CSTEE in EU, assessment by CERHR in the U.S.A. and assessment by Advanced Industrial Science and Technology of Japan, it is observed that there is any species difference. In the estimation of acceptable level based on the data of rodents, the discussion about the above species difference has not been reflected to the safety coefficient, and the possibility of reproductive toxicity in humans has not been concluded yet. It has been reported in the aspect of metabolism of DEHP that there is a species difference between rodents and humans. That is, after ingestion of DEHP in rodents, its free metabolite is likely to circulate in the body, but in humans, most of the metabolites are excreted from the body quickly in the nontoxic glucuronide form. These phenomena have been confirmed in the experimental result of pharmacokinetics in the liver-humanized chimera mice, and the amount of exposure estimated from the humanized PBPK model and human biomonitoring data is incommensurably lower than the present TDI value. That is, it was concluded that the risk is managed appropriately. In compliance with the present manual for GHS classification, the evaluation of species difference is insufficient, it is inappropriate for DOP with vast amounts of research data to perform the evaluation in humans as the evaluation of species differences is insufficient, and at present, it should not be classified (“not classified”).

STOT - repeated exposure

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	As described in the reproductive toxicity section, it was found from the data of the study in rats/marmosets performed so far that the pharmacokinetics of DOP is different between rodents and primates, and it is shown that testicular toxicity does not develop in primates. (Not classified)

Other adverse effects No activations were observed in estrogen activation tests in vivo (uterine hypertrophy reaction test with the ovariectomized rats).

12. ECOLOGICAL INFORMATION

Ecotoxicity

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Hazard rationale information	Acute: Acute toxicity has not been reported at concentrations up to water solubility (0.003 mg/L). Chronic: Classified as “not classified” because of rapid degradation and low bioaccumulation. The NOEL observed in the toxicity study of killifish in the initial growth stage by Shioda and Wakabayashi (2000) and the Ministry of the Environment (2004d) using the dissolution aid by the method considered appropriate is far higher than water solubility, and the concentration is the implausible value at the DOP concentration detected in the general aquatic environment

Persistence and degradability Good degradability.

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester (117-81-7)

Method	Exposure time	Value	Results
OECD Test No. 301C: Ready Biodegradability: Modified MITI Test (I) (TG 301 C)		BOD 69%	Readily biodegradable

Bioaccumulation It is no or low concentrative and does not bioaccumulate.

Component Information

Chemical name	Partition coefficient
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester 117-81-7	5.03 (*BCF=29.7)

Mobility in soil No information available.

Hazardous to the ozone layer Classification not possible. Based on available data, the classification criteria are not met.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste from residues/unused products
Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging
Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

IMDG Not regulated

ADR Not regulated

IATA Not regulated

Japan Not regulated
Special precautions Make sure the container is not damaged, corroded, leaked, etc. before shipping.

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
Pollutant Release and Transfer Register (PRTR)
The amount of the relevant substance in certain cases referenced in article 4(i)(a) or 4(i)(b) of the Enforcement Order of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) is calculated based on the conversion factors shown (with safety factor = 1 in cases where conversion factor information is not available)

Chemical name	Cabinet order name	Metal, CN, F, etc	Conversion coefficient	Content rate %	Category	Ordinance number	Control number
*	Bis(2-ethylhexyl) phthalate			100	Class I designated chemical substance	1-396	355

***** Refer to Cabinet order name

Industrial Safety and Health Law

Harmful Substances Whose Names Are to be Indicated on the Label
Article 57-1 of ISHL, Article 18, Item 1, Item 2, Appended Table 9 and Item 3, Appended Table 3 of Order for Enforcement

Chemical name	Ministerial Ordinance Name	CAS No.	Content rate %	Implementation date
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	Bis(2-ethylhexyl) phthalate (synonym: DEHP)	117-81-7	100	

ISHL Notifiable Substances
Article 57-2 of the ISHL, Article 18-2, Item 1, Item 2, Appended Table 9 and Item 3, Appended Table 3 of Order for Enforcement

Chemical name	Ministerial Ordinance Name	CAS No.	Content rate %	Implementation date
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	Bis(2-ethylhexyl) phthalate (synonym: DEHP)	117-81-7	100	

Harmful substances requiring risk assessment
Article 57-3 of the ISHL

Industrial Safety and Health Act 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2

Paragraph 1)

Chemical name	CAS No.	Causing Skin Absorption	Causing Skin Damage	Causing Skin Eye Damage	Causing Skin Specific Substance
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	117-81-7	X			

Poisonous and Deleterious Substances Control Law
Not applicable
Fire Service Law:
Flammable liquids, group 4, 4th class petroleums, hazard rank III, 6000 liters
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (CSCL)
The table below indicates ingredients above the cut-off threshold considered as relevant which are listed

Chemical name	CAS No.	Chemical Substances Control Law
1,2-Benzenedicarboxylic acid bis(2-ethylhexyl) ester	117-81-7	Priority assessment chemical substance

Act on Prevention of Marine Pollution and Maritime Disaster
Subject to the Law Regarding the Prevention of Marine Pollution and Maritime Disaster and its Ordinance, Table 1- 2; category Y
Water Pollution Control Act
Designated substance may cause adverse effects to human health or the living environment per Water Pollution Control Law article 2 and Enforcement Order article 3-3
Waterworks (Water Supply) Act
Waterworks (Water Supply) Act article 4 water quality guidelines
Air Pollution Control Law
Hazardous air pollutants (HAPs) per Air Pollution Control Law article 2, paragraph 1, item 3 and Enforcement Order article 1
Positive List of Food Contact Materials
Specifications and standards of foods, additives, etc. 3-A-7 “In the devices or containers and packages contacting with foods containing oil or fat, the synthetic resin mainly containing polyvinyl chloride using bis(2-ethylhexyl) phthalate as a raw material should not be used as a raw material. However, this shall not apply when processed so that bis(2-ethylhexyl) phthalate may not dissolve or leach and may not be mixed with foods. Specifications and standards of foods, additives, etc. 4-A-6 “the synthetic resin mainly containing polyvinyl chloride using bis(2-ethylhexyl) phthalate as a raw material should not be used as a raw material in toys.”

International Regulations

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Included
KECI	Complies
AIIC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals

16. Other Information

Revision date 10-Jul-2024
Revision Number 17
Revision Note

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Legend

IMDG	International Maritime Dangerous Goods (IMDG)	ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA	International Air Transport Association (IATA)		

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Chemicals Agency
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

This SDS complies with the requirements of JIS Z 7253:2019 (Japan). The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet